In Case of Emergency...

The 411

NSF’s Rally Points

Take the time to know where NSF meets during an emergency. You’ll be glad you did.

Did you know?

NSF has two rally points: Welburn Square is the main rally point where everyone should report after exiting Stafford I and II.

If Welburn Square is not inhabitable or we need to move away from Stafford I and II, we will report to Quincy Park – about 5 blocks northeast of NSF. You can see a map of Quincy Park here.
Social, Behavioral, and Economic Sciences Directorate

Advisory Committee
December 14-15, 2015
I. Welcome

II. Introductions of New AC Members

Lydia Villa-Komaroff
(CEOSE Liaison)
Board Member
Cytonome/ST, LLC, ATCC
Massachusetts Life Science Center
Joined Spring 2015

John Gabrieli
Director of Athinoula A.
Martinos Imaging Center
McGovern Institute
Grover Herman Professor
Harvard-MIT

Arthur Lupia
Center for Political Studies
Hal R. Varian Professor
Department of Political Science
Institute for Social Research
University of Michigan

Linda Smith
Distinguished Professor
Psychological and Brain Sciences
Indiana University
(Joins in Spring 2016)
Update on the SBE Directorate: Fay Lomax Cook

1. Welcome
2. Introduction of New Staff in Office of the Assistant Director
3. Division Updates
   - Howard Nusbaum, Division Director Behavioral Cognitive Science
   - Alan Tomkins, Acting Division Director Social and Economic Sciences
   - John Gawalt, Division Director National Center for Science and Engineering Statistics
4. 2016 Priorities and Outlook
5. Budget Update
6. Robust and Reliable Science
7. Big Awards for SBE Researchers
OAD Staff Updates

Kelli Craig-Henderson  
Deputy Assistant Director

Madeline Beal  
Communications Specialist

John Garneski  
Budget Analyst

Cori Anderson  
Program Assistant

Anne Marie Kanakkanatt  
Program Analyst
Staff Updates:

Howard Nusbaum
Division Director

Kate Arrington
Perception, Action, and Cognition
Program Director

Colleen Fitzgerald
Documenting Endangered Languages
Program Director

Tamera Schneider
Social Psychology
Program Director

Charles Kalish
Science of Learning
Program Director

Stephanie Hill
Program Assistant

Kenyatta Johnson
Program Specialist

Patrick Ravanera
Operations Specialist

Raquel Robinson
Program Assistant

LaQuanda Terrell
Program Support Manager
BCS Updates Continued

- Hiring: Six Program Directors and an Associate Program Director
  - DLS, GSS, Bio Anthro, Social Psych, Linguistics, Science of Learning and Psychological Science

- Continued experience with innovative Merit Review Processes
  - GSS “Plus One”, “College of Reviewers”, pre-panel triage

- Broad initiatives within/across programs, divisions, and directorates
  - Forensic Science, Cyberinfrastructure and Data Intensive Science, Understanding the Brain...
Human Neuroscience at BCS

- Neuroscience in the wild
  - Poeppel and Ding: Recording electrical brain activity of students in classrooms to understand social interactions and neural activity in classroom learning. (INSPIRE)

- Peering into the sleeping brain
  - Norman and Paller: Decoding EEG during sleep to determine the fate of memories. (Integrative Strategies for Understanding Neural and Cognitive Systems)

- Into the future: Mobile, real-world, multi-sensor, multi-modal, multi-person, modeling analysis+simulation
SES Updates: Alan Tomkins, Acting Division Director, SES

Staff Updates:

Wenda Bauchspies
Science, Technology and Society

Amber Denola
Science Assistant

Seung-Hyun Hong
Economics Program Director

Beth Rubin
Sociology Program Director

Role changes:
• Alan Tomkins, Acting Division Director
• Katherine Meyer, Acting Deputy Division Director
Researchers used new methodological tools to develop this predictive model.

When applied historically this model is 47% better at predicting conflicts than the standard model used.

A key finding is trade and the strength of governmental organizations are more important variables in limiting conflict than the type of governments involved. This contradicts a commonly held theory known as democratic peace.

A model that predicts conflict more reliably can help governments plan ahead for global resource allocation.

Overall advances in a modeling approach that improves power and flexibility will facilitate the analysis of many types of complex network data.

Tools used in 2015 to research Ebola panic and pandemic.
CISE and SBE Collaborating to Understand the Behavior of Hackers and Assess What’s Vulnerable versus What’s Not

Researchers use novel data-mining techniques and computational cyber-analytics to understand how hackers communicate and act online.

Researchers have been able to identify key cyber-crime leaders and facilitators within the large international, underground community.

Researchers have uncovered vulnerable devices in the internet of things.

REU award allows students from underrepresented groups to study cybersecurity.
A randomized field experiment in which low-income individuals receiving tax preparation help were also offered immediate assistance and a streamlined process to complete the Free Application for Federal Student Aid (FAFSA) for themselves or their children.

In families that received the intervention: 36% of high school seniors had completed 2 years of college within 3 years compared to only 28% in the control group.

Builds on evidence that forms can be a significant barrier to accessing benefit programs.

Suggests that personal assistance could increase participation in such programs.
Data Infrastructure Projects: National and International

**Social Science Surveys**
- Big Three
  - American National Election Studies (ANES)
  - General Social Study (GSS)
  - Panel Survey of Income Dynamics (PSID)

**Other Significant Data Sets**
- Integrated Public Use Microdata Series (IPUMS)
- Luxembourg Income Study (LIS)
- School Attendance Boundary Information System (SABINS)

PSID Findings in 2015 included:

- Parenting effectiveness is more attributable to quality than quantity, with developmental outcomes including behavioral problems, emotional problems, academic performance, and, for the adolescents in the sample, risky behaviors (everything from substance abuse to staying out later than allowed by parents).

- Persistently poor kids were 13% less likely to complete high school and 43% less likely to complete college than kids who had brief spells of poverty. Persistently poor kids were also more likely to be teen parents and less likely to be consistently employed as younger (ages 25 – 30) adults.

- There are lifetime economic impacts attributable to one’s first job – lower paying first job leads to lower lifetime earnings.
NCSES Updates: John Gawalt, Division Director, NCSES

Staff Updates:

Amy Burke
Science & Engineering Indicators Analyst

Tyler Fox
Data Manager/Statistician

Additional New Staff:
- May Aydin: Information and Technology Services Program Director
- Catherine Corlies: Publications Manager
NCSES Updates Continued

- NCSES is one of 13 Principal Statistical Agencies, with ongoing survey programs covering:
  - Education of Scientists and Engineers
  - Science and Engineering Workforce
  - Research and Development Funding and Expenditures
  - Science and Engineering Research Facilities
  - Public Attitudes Toward and Understanding of Science and Technology

- Project Highlights:
  - Survey of Doctorate Recipients: Expanded 2015 sample size (from about 42,000 individuals to over 110,000 individuals) to provide data on employment outcomes by detailed subfield, race, and gender
  - Early Career Doctorates Survey: Pilot completed, Full-scale survey under development
  - CNSTAT Workshop: Advancing Concepts and Models of Innovative Activity and STI Indicator Systems
  - Survey of Nonprofit Research and Development: Pilot survey under development
SBE’s Core Programs

SBE Office of Multidisciplinary Activities (SMA)
- Science of Science and Innovation Policy
- Research Experiences for Undergraduates Sites
- SBE Postdoctoral Research Fellowships
- Science of Learning
- Interdisciplinary Behavioral and Social Science Research

Behavioral and Cognitive Sciences (BCS)
- Cognitive Neuroscience
- Perception, Action and Cognition
- Developmental and Learning Sciences
- Social Psychology
- Geography and Spatial Sciences
- Archaeology and Archaeometry
- Biological Anthropology
- Cultural Anthropology
- Linguistics
- Documenting Endangered Languages

Social and Economic Sciences (SES)
- Economics
- Political Science
- Sociology
- Law and Social Sciences
- Decision, Risk and Management Sciences
- Science of Organizations
- Science, Technology and Society
- Methodology, Measurement and Statistics

National Center for Science and Engineering Statistics (NCSES)
- Human Resources Statistics Program
- Research and Development Statistics Program
- Science and Engineering Indicators Program
- Information and Technology Services Program
- Research on the Science and Technology Enterprise: Statistics and Surveys
## Priorities for 2016

### Cross NSF Directorate Research Priorities

1. Understanding the Brain
2. Cyberinfrastructure for 21\textsuperscript{st} Century Science, Engineering and Education
3. Secure and Trustworthy Cyberspace
4. Innovations at the Nexus of Food, Energy, and Water Systems
5. Risk and Resilience: Critical Resilient Interdependent Infrastructure Systems and Processes
6. Smart and Connected Communities
7. Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Science and Engineering
Understanding the Brain

Cross-directorate activity to enable the scientific understanding of the full complexity of the brain in action and in context through targeted, cross-disciplinary investments in research, technology, and workforce development.

Explore the dynamic relationship between brain structure and activity and human cognition and behavior.

Integrative Strategies for Understanding Neural and Cognitive Systems (NCS)

- Solicitation first Issued in 2015, re-issued in 2016 (SBE, CISE, ENG, EHR)
- NSF seeks exceptional proposals that are bold, potentially risky, and truly integrative, transcending the perspectives and approaches typical of disciplinary research programs.
  - Neuro-engineering and Brain-Inspired Concepts and Designs
  - Individuality and Variation
  - Cognitive and Neural Processes in Realistic, Complex Environments
  - Data-Intensive Neuroscience and Cognitive Science

SBE has ongoing investments in cognitive science and human neuroscience through our core programs (Cognitive Neuroscience; Development and Learning Sciences; Perception, Action, and Cognition; Linguistics; Social Psychology; Science of Learning; Economics; and Decision, Risk, and Management Sciences)
Goal: To produce large, multi-disciplinary databases and the tools needed to analyze these databases to address fundamental research questions in the social, behavioral, and economic sciences.

<table>
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<tr>
<th>Cyberinfrastructure Framework for 21st Century Science, Engineering and Education (CIF21)</th>
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<td><strong>SBE Supports: Resource Implementations for Data Intensive Research in the SBE Sciences (RIDIR)</strong></td>
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- Facilitates the study of research questions that can’t be answered without large data infrastructure.

- Not only creates the resource, but also creates the tools and interface needed for discipline-based researchers to use the resource to explore research interests.

- Data infrastructure designed with community input from the outset will be more effective than the Field of Dreams Model of “If you build it, they will come.”
SBE Budget Overview

- SBE FY 2016 Request is $291.46 Million
- NSF is currently operating under a Continuing Resolution
- Uncertainty regarding SBE’s budget until a final FY 2016 Appropriation is enacted
Goal: To raise awareness among NSF program officers and begin a discussion of what the Foundation can do to improve the reliability of the research we fund

Keynote: Dr. Marcia McNutt, Editor-in-Chief: *Science*; incoming president of the National Academies: Robust and Reliable Research

Invited Talks:
- Dr. Kenneth Bollen, University of North Carolina-Chapel Hill: SBE Perspectives on Robust and Reliable Science
- Dr. J. Tinsley Oden University of Texas-Austin: Foundations of Predictive Science: Selection and Validation Models of Complex Systems

Breakout topics and session leaders:
- Statistics (Dr. Steven Goodman, Stanford University)
- Data- and code-sharing (Dr. Victoria Stodden University of Illinois at Urbana-Champaign)
- Replication and generalization of studies (Dr. Brian Nosek, University of Virginia)
Awards to SBE Supported Researchers

- The Golden Goose Award
- MacArthur Fellows “Genius Grants”
- The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel
Golden Goose Award: Marshmallow Test

Walter Mischel
Robert Johnston Niven
Professor of Humane Letters
Department of Psychology
Columbia University

Philip Peake
Director Center for Community Collaboration
Professor of Psychology
Smith College

Yuichi Shoda
Professor of Psychology
University of Washington
MacArthur Fellowships “Genius Grants”: 3 of 24

Matthew Desmond
John L. Loeb Associate Professor of the Social Sciences and co-director of the Justice and Poverty Project
Harvard University

Beth Stevens
Assistant Professor
Department of Neurology
Harvard Medical School

Heidi Williams
Assistant Professor
Department of Economics
MIT
The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2015

Angus Deaton
Dwight D. Eisenhower Professor of Economics and International Affairs
Princeton University
<table>
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<tr>
<th>Time</th>
<th>Agenda Item</th>
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| 9:45 am – 10:35 am | BCS COV Report: Dr. JW Harrington, BCS COV Chair  
SBE/BCS response:  
Dr. Howard Nusbaum, Division Director, BCS  
Dr. Amber Story, Deputy Division Director, BCS  
Advisory Committee discussion and vote on acceptance |
| 10:35 am – 10:50 am | Break                                                                                               |
| 10:50 am – 11:40 am | SMA COV report  
Dr. Catherine Eckel, SMA COV Chair  
SBE/SMA response:  
Dr. Deborah Olster, Senior Advisor, SBE  
Advisory Committee discussion and vote on acceptance |
| 11:40 am – 12:40 pm | Robust and Reliable Science  
Dr. Kenneth Bollen, Chair, Subcommittee on Recommendations for SBE Robust and Reliable Research  
Advisory Committee discussion |
| 12:40 pm – 1:45 pm | Lunch (on your own)                                                                                  |
| 1:45 pm – 2:15 pm | Behavioral and Social Sciences Research at NIH  
Dr. William Riley, Director, Office of Behavioral and Social Sciences Research, NIH  
Discussion with Advisory Committee |
| 2:15 pm – 3:15 pm | White House OSTP Social and Behavioral Sciences Team  
Dr. Maya Shankar, Senior Advisor SBST, OSTP  
Dr. William Congdon, Fellow, SBST, OSTP  
Discussion with Advisory Committee |
| 3:15 pm – 3:30 pm | Break                                                                                               |
| 3:30 pm – 4:30 pm | NSF activities and Strategies Related to Graduate Education  
Dr. Joan Ferrini-Mundy, Assistant Director, Directorate for Education and Human Resources  
Discussion with Advisory Committee |
| 4:30 pm – 5:00 pm | Preparation for meeting with NSF leadership                                                         |
| 5:00 pm – 6:00 pm | Reception for AC members and SBE staff (Rm 905)                                                      |
| 6:30 pm | No-host dinner for Advisory Committee  
(Bangkok Bistro, 715 N. Glebe Road, Arlington, VA) |
### AC Meeting Agenda (Tomorrow)

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<th>Time</th>
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| 9:00 am – 10:00 am | NSF Office of Legislative and Public Affairs  
Ms. Amanda Greenwell, Head of NSF Office of Legislative and Public Affairs  
Discussion with Advisory Committee |
| 10:00 am – 11:00 am | Meeting with NSF leadership  
Dr. Richard Buckius, Chief Operating Officer, NSF |
| 11:00 am – 12:00 pm  | Next Steps in Transformational SBE Science  
Dr. Emilio Moran, SBE Advisory Committee Chair  
Dr. Arthur “Skip” Lupia |
| 12:00 pm – 12:30 pm  | Agenda and dates for future meetings, assignments and concluding remarks  
Dr. Emilio Moran, SBE Advisory Committee Chair  
Dr. Fay Lomax Cook, SBE Assistant Director |
| 12:30 pm          | Adjourn                                                               |

### Spring Meeting:  
May 23-24, 2016
Thank You...